

POLYKEN®



Cold Applied Tape Coating System Field Joint Application Specifications

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COLD APPLIED TAPE POLYKEN COATING SYSTEM FIELD JOINT APPLICATION SPECIFICATION

SCOPE

- 1.0 General**
- 2.0 Material Storage**
- 3.0 Field Joint Preparation**
- 4.0 Liquid Adhesive Application**
- 5.0 Joint Coating Application**
- 6.0 Joint Coating System Repair**
- 7.0 Lowering in and Backfill**

Materials Discussed in the Guideline:

- Polyken #1027, 1033-A and 1039 liquid adhesive.
- Polyken High Temperature liquid adhesive # 1619, # 2019 or #2027.
- Polyken # 933 seam tape or #931, or 939 filler mastic.
- Polyken #930, #932 or #934 corrosion layer.
- Polyken #905, #954 or #955, #2055 mechanical layer.
- Polyken High Temperature corrosion layer #1600 and #2036.
- Polyken High Temperature mechanical layer #2055.

COLD APPLIED POLYKEN TAPE COATING SYSTEM FIELD JOINT APPLICATION SPECIFICATION

1.0 GENERAL

- 1.1 This specification will cover the proper application and installation of the Polyken[®] (Berry Plastics CPG) joint wrap coating system for the exterior protection of welded or O-Ring field joints.
- 1.2 The joint coating system shall be applied in accordance with Berry Plastics CPG specifications and the end-user specifications. The joint coating system shall be applied in accordance with size specifications per Berry Plastics CPG recommendations.
- 1.3 The pipeline contractor responsible for the application of the joint coating system shall furnish all equipment and properly trained and supervised labor and service required for the specified application of the joint coating system. All equipment and tools required for the application of the joint coating system shall be subject to the approval of the End-user Company. The pipeline contractor shall follow the Berry Plastics CPG application specifications and work in harmony with representatives of Berry Plastics CPG and the end-user to alleviate any difficulties during the application and installation.
- 1.4 The contractor shall be responsible for verifying the integrity of the coated field joint. Damaged coating shall be repaired at the contractor's expense. The pipeline contractor shall supply all repair material.
- 1.5 At the option of the end-user company or the pipeline construction contractor, Berry Plastics CPG will provide a service representative to assist or instruct the contractor and/or the end-user coating inspector with the proper application of the joint coating system.
- 1.6 The Berry Plastics CPG (Polyken[®]) service person shall have the authority, through the end-user representative, to suspend the application of the joint coating system until such time that the application satisfies Berry Plastics CPG (Polyken[®]) application and quality control standards for the joint coating system.
- 1.7 Inspection of coated field joints shall be performed by coating inspectors qualified either by experience or certified training. The joint coating system shall be applied by properly trained personnel in the application of the joint coating system and meet the approval of Berry Plastics CPG (Polyken[®]).
- 1.8 High-tack adhesive joint wrap tapes are supplied with a coated release liner on the adhesive. This interliner is required to prevent the highly aggressive adhesive from prematurely bonding to the tape backing.

2.0 MATERIAL STORAGE

- 2.1 All coating material shall be stored, handled, and transported in such a manner that could prevent damage to individual carton containers. Cartons, tape rolls, or individual repair rolls removed from the storage pallets shall not be dropped, rolled, or thrown in any manner as to damage the coating material. Cartons or tape rolls shall not be handled with hooks, ropes, cables, or any other mechanical devices as to damage the coating materials.
- 2.2 Factory rolls and/or cartons shall be stacked on end at all times and no higher than 72 inches (183 cm).
- 2.3 The coating material shall be stored and/or transported in a dry, ventilated location. Storage temperature shall be a minimum of 60°F (16°C) and a maximum of 125°F (52°C).

- 2.4 Individual cartons or rolls of coating material shall not contact bare ground or bare warehouse floor. Tools or equipment shall not be stacked on top of the rolls.
- 2.5 Joint coating materials that have been damaged or show signs of deterioration shall be inspected by representatives of Berry Plastics CPG and at the discretion of the end-user, be rejected.
- 2.6 Liquid adhesive shall be stored in accordance with regulations that govern hazardous material storage. Liquid adhesive inventory shall rotate on a first in - first out basis. Liquid adhesive containers shall be marked with receiving date.
- 2.7 Joint-coating system waste material, liquid adhesive containers, stub rolls, empty cartons, release liners, separator papers, and related waste materials SHALL NOT be discarded along the pipeline right-of-way or in the pipeline trench.
- 2.8 Roll separator paper, as supplied by Berry Plastics CPG, shall always be used with the joint wrap tape coatings. The separator paper prohibits adhesive edge bleed of the tape rolls from sticking to unintended surfaces.

3.0 FIELD JOINT PREPARATION

- 3.1 The field joint pipe surface shall be free of mud, oil, grease, or any other foreign material that will prevent the joint coating system from bonding to the steel pipe surface. Visible oil and grease shall be removed with suitable solvent. **Toluene or Heptane solvents are recommended. The steel surface shall be dry prior to the application of the joint wrap tapes.** KEROSENE shall NOT be used for cleaning the pipe joints.
- 3.2 All bare pipe surfaces shall be either power wire brush or abrasive cleaned. The power wire brush cleaned surface shall be cleaned to a Swedish Standards Association (SSA), ISO-8501-ST2 or Steel Structure Painting Council (SSPC) SSPC-SP3-82 surface finish. The abrasive cleaned surface shall be a minimum commercial blast surface finish as specified in Swedish Standards Association (SSA), ISO 8501-SA 2.5 or Steel Structure Painting Council (SSPC) SSPC-SP6-82 surface finish. All burrs and weld slag shall be removed from the pipe surface.
- 3.3 The pipe surface shall be dry and free of any dust particulate prior to the application of the joint coating system. There shall be no flash rust on the pipe surface prior to the application of the coating system.
- 3.4 Mill applied primary coating system should be beveled at the cutback area with a power wire brush. Abraded coating shall be removed from the cut back area.
- 3.5 The pipe joint surface shall be free of dew, frost, or rain moisture prior to the application of the joint coating system. If required by the end-user, prior to the application of the tape coating system, the pipe steel shall be heated to 120°F / 48.8° C, to remove any moisture trapped within the steel surface.

4.0 LIQUID ADHESIVE APPLICATION

- 4.1 The Berry Plastics CPG (Polyken[®]) joint coating system shall ALWAYS be applied with the proper Berry Plastics CPG (Polyken[®]) liquid adhesive, (# 1027, #1033-A or #1039 liquid adhesive w/all #900 series tapes, #1027 Liquid adhesive w/ #2000 series tapes and #1619 liquid adhesive w/ all 1600 series tapes). Other liquid adhesives are available for use. Contact Berry Plastics CPG Representative for more information.
- 4.2 Liquid adhesive is applied to the pipe steel surface with a brush or paint roller to a wet film thickness of no less than two (2) mils (51 microns) and no greater than 3 mils (76 microns). The adhesive shall be thoroughly mixed prior to application on pipe. Liquid adhesive container shall

remain covered when not in use.

- 4.3 The liquid adhesive shall cover the entire exposed steel surface including the raised circumferential weld bead and overlap onto the mill applied primary coating system by a minimum of 4 inches (10.16 cm).
- 4.4 The adhesive must be dry, "**DRY TO TOUCH**" prior to the application of the joint wraps.
- 4.5 The liquid adhesive shall not be diluted. Adhesive cans shall remain covered when not in use to avoid solvent evaporation and contamination.
- 4.6 If required by the end-user, prior to the application of the joint coating system, if the raised girth weld is over 3/32" (.24mm) in height, the weld shall be coated with the Polyken® #933-25 seam tape or #931 or #939 solid mastic filler. A filler strip, 6 inches (15.2 cm) wide shall be centered, smoothed, and coat the entire surface of the raised girth weld.

5.0 JOINT COATING APPLICATION

- 5.1 The cold applied joint wrap tape coating systems shall be applied under taunt hand tension or using a hand-wrapping machine capable of maintaining even, constant tension across the width of the tape.
- 5.2 The joint wrap tape coating system shall be applied to the primed field joint in either spiral or cigarette configuration, as determined by the end-user specifications. The wrapping process shall start at a minimum of 4 inches (102 mm) beyond the cutback edge of the plant applied coating and start on the downside of the pipe. With the use of the high tack adhesive taping systems, the release liner should be removed just prior to the application of the tape to the primed pipe surface. This will prevent contamination of the high tack adhesive.
- 5.3 The joint coating system shall be applied under taunt hand or machine tension that will result in a smooth, wrinkle free coating. Sufficient tension shall be applied to affect a 1.5 - 2% neckdown width. Tape widths over 6" (153 mm) are not recommended. The minimum spiral overlap width shall be 1" (25 mm), or when applying the #1600 or #2036 systems, the overlaps will be 55%. Particular attention should be given while coating over the girth weld area, to prevent wrinkles in the coating.
- 5.4 A minimum of two layers of joint wrap tape coating shall be applied over the field joint. If a single layer is required, then a mechanical protection outerwrap layer shall be applied over the single layer of joint wrap. Using the #1600 or #2036 systems, tape coating material is applied with a 55% over lap and does not require the mechanical layer. The mechanical protection layer shall be applied in accordance with Section 5.0. When ditch conditions dictate or when required by end-user specifications, additional layers of the joint coating system can be used. The end of the spiral wrap shall be cut on the downside at the 3 or 9 o'clock position on the pipe, (spring line).
- 5.5 The joint coating system materials shall be stored in a facility in accordance with Section 2.0 at a minimum ambient temperature of 60°F (16°C) and not to exceed 125°F (52°C). The rolls shall be removed and transported from the storage facility on a daily consumption basis and conveyed to the right-of-way (ROW) in a heated and covered box, vehicle, or sled. The heated box, vehicle, or sled shall be maintained at a minimum of 70°F (21°C) and not to exceed 125°F (52°C) to insure proper roll body temperature prior to application. The joint coating system shall be stored in the heated vehicle or sled a minimum of 24 hours prior to application and shall be removed just prior to application. The joint coating system SHALL NOT be applied if the coating roll body temperature is below 60°F (16°C).

6.0 JOINT COATING SYSTEM REPAIR

- 6.1 The coated field joint shall be electrically inspected for holidays according to National Association of Corrosion Engineers (NACE) Standard RP-02-74, (Square root of the coating thickness, in mils X 1250 volts +/- 20 %). The travel rate of the holiday detector shall not exceed one foot (30.48 cm) per second, nor shall an activated holiday detector remain stationary over the coated field joint.
- 6.2 Coated field joints that are damaged prior to lowering in and backfilling shall be repaired with coatings approved by the end-user.
- 6.3 The damage area shall be cleaned and the abraded portions trimmed level. The repair coating shall be applied in accordance with the coating manufacturer specifications or recommendations.

7.0 LOWERING IN AND BACKFILL

- 7.1 Backfill material shall contain NO large or sharp stones that could damage the joint wrap coating system during backfilling.
- 7.2 Perforated rockshield shall be used on backfill operations requiring the utilization of supplemental rockshield protection.
- 7.3 Pipe joint sections, coated with the joint wrap tape coating system, shall be coated with Polyken[®] #954-15 joint outerwrap prior to pulling through cased or uncased directional bores. The exposed edge of the joint wrap coating shall face away from the boring direction.
- 7.4 The #954-15 shall be applied under tension in a spiral configuration, over the entire coated field joint area. The spiral overlap of the #954-15 shall be in a 50% overlap or half-lap configuration. The exposed edge of the #954-15 wrap coating shall face opposite to the bore direction. The #954-15 wrap coating shall overlap the leading edge of the coated field joint a minimum of 4 inches (102 mm) and onto the main line coating system a minimum of 4 inches (102 mm).